unbundled network elements and services resale, as well by persistent regulatory barriers. All of this reinforces the conclusion that the time for entry by BellSouth into interexchange services has not yet come, and that the public interest requires public authorities to proceed with extreme caution in this direction.

B. THE CONTESTABILITY CLAIM

25. Some of the BOCs have suggested that local exchange markets are now contestable, a market condition that offers public interest benefits virtually the same as those ensured by powerful competitive forces. That conclusion is not supported by the facts, which suggest that entry into many of the local exchange activities will hardly be quick and easy, as contestability requires.

26. This result follows from the very requirements of contestability. A CONTESTABLE MARKET is defined as one in which barriers to entry, both natural and artificial, are for all practical purposes absent or minimal. When a market is perfectly contestable (a situation that is, of course, never more than approximated in reality) no participant in that market can retain any vestige of monopoly power. It cannot expect to earn profits higher than those currently obtained in competitive industries because any such excess profits will attract entrants into the contestable market -- entrants who offer lower prices and can thereby take customers away from the expensive products of the incumbent seller. The

incumbent can even be prevented from recouping its lost business if the lower-priced entrants negotiate longer-term contracts with their new customers.

27. Perfect contestability precludes not only excessive prices and excessive profits; it also drives out firms that are inefficient by permitting entrants to undercut them. In addition, contestability rules out cross-subsidy and predation because it prevents the excessive profits that are the ultimate objective of either of these types of activity.

28. Contestability, as just noted, requires the absence or virtual elimination of all artificial and natural barriers to entry. The term ARTIFICIAL BARRIER refers to impediments to entry imposed by the deliberate actions of government agencies, firms in the market or others. A franchise restriction upon operation in some market is a clear example of a substantial barrier to entry that by itself is sufficient to prevent a market from being anything near to contestable. Procedures adopted by a firm that possesses a bottleneck facility and that overtly or subtly handicap an entrant hoping to make use of that facility are another obvious illustration. Artificial or needless restrictions on the use of unbundled network elements would be an example of such a barrier to entry into the local exchange market.

29. In addition, a NATURAL BARRIER to entry is one that is imposed not by deliberate human action, but by circumstances out of the hands of decision makers. They can be a consequence of the nature of the technology of the industry, of the character of the pertinent market, and other circumstances. The clearest example of such a barrier that is cited in virtually all discussions of contestable markets is the need for an entrant to incur a relatively

large sunk investment before it can begin to operate. If an entrant must build a costly plant, sink considerable amounts of money into advertising, or incur other types of outlay which it cannot hope to recoup for some lengthy period, then entry entails a very considerable risk that those sunk outlays will never be returned. In markets where such sunk costs are minimal, entry can indeed be quick and easy, and entrants can try their luck with little fear of disastrous consequences because their entry puts so little at risk. But markets where entry requires large sunk outlays are generally recognized to be far from contestable.

30. For these reasons, it is clear that the exchange operations of the BOCs are not contestable markets. They are beset by regulatory and other restrictions upon entry. Not only is entry into exchange activities impeded by the presence of incumbents who were in the field far earlier, it characteristically requires heavy sunk investments, notably into the local loop facilities. While the latter category of entry barriers is reduced, to a degree, by the Telecommunications Act requirement that BOCs sell unbundled network elements ("UNEs"), UNE-based entrants must still sink some costs before serving customers. Moreover, UNE-based entrants still rely on the incumbent local exchange monopolist to provide essential inputs. Such an incumbent often has both the means and incentives to discriminate against resellers and purchasers of UNEs.

C. MONOPOLY PRICING AS ENTRY INCENTIVE V. BARRIER-REDUCING RULES

31. I must deal also with the argument of BellSouth witnesses which asserts that supra-competitive pricing of loops and other facilities can never long persist, because such prices will spur entry. It is true that excessive profits always make a field more attractive to prospective entrants; but so long as substantial barriers to entry remain, such prospects will continue to constitute little more than wishful thinking about contestability or the availability of effective competitive constraints upon the BOCs.

32. I have previously offered a set of regulatory rules or provisions that are necessary to reduce barriers to a minimum (Toward Competition in Local Telephony (pp. 121-123)). The premise of these proposed criteria is that, beyond the elimination of barriers, there must be some standard for determining when (or whether) new entrants or potential entrants into exchange operations are sufficiently powerful as a group to make all components of exchange operations either truly competitive or effectively contestable. BellSouth does not even argue that the local exchange market is effectively competitive, a contention which, as demonstrated above, would conflict with reality.

33. I shall not undertake here to propose a set of standards for determining when effective exchange competition can be deemed to have eliminated BellSouth's market power in the local arena, but simply note two points: first, under any reasonable standard, the local exchange markets served by BellSouth are not yet effectively competitive and, second,

only satisfaction of reasonable criteria in this area will permit BellSouth's entry into interLATA service without risking the impediments to competition the current restrictions were properly designed to preclude.

III. ON THE LIMITS OF REGULATION AS A SUBSTITUTE FOR CURRENT LIMITATIONS ON BOC ENTRY INTO LONG DISTANCE

A. INCENTIVES AND OPPORTUNITIES FOR DISCRIMINATION IN THE PROVISION OF ACCESS

34. There is no foundation for BellSouth's claim that, under current regulatory rules, it is deprived of all power and incentive for discrimination in the terms on which it provides access. BellSouth supplements this claim with the standard argument asserting that vertical relationships entail no anticompetitive perils to the public interest. This section will deal briefly with the latter assertion and will then address itself to the former.

35. It is claimed that entry by a firm with a bottleneck facility into the supply of a final product that employs that facility as an input will normally not imperil competitiveness in the production of that final product (interLATA telecommunications service in the case at hand). The argument is that the holder of the bottleneck already possesses, as a result of its control of the bottleneck, all the market power it needs to extract whatever monopoly profit the final product prospectively offers. By charging a sufficient fee for use of the bottleneck, its proprietor can extract whatever profits the traffic will bear, leaving nothing further to be obtained through entry into the vertically related field, the supply of the final

product. Whatever the limitations of this theoretical argument, and it has indeed been questioned in the economic literature, it is certainly inapplicable to the current issue. The expectation of continued regulation of the local exchanges ensures that the holder of the bottleneck will not be able to extract all of the monopoly profit it could obtain from its final product if it were left free to adopt any prices it desired. That, after all, would be the fundamental purpose of continued regulation of the exchanges, even under a pure price cap scheme, and this fact underlies the logic of the divestiture of the bottleneck facilities under the MFJ.

36. The consequence is that the LECs' final product price will in practice leave uncollected potential monopoly profits. Consequently, there will normally be further profits to be earned through the LECs' entry into the supply of interLATA service on terms distorted by the pricing of access when provided to competitors. Moreover, because of economies of scale in the transmission process, it is well known that viable interLATA service prices must exceed incremental costs, and they will normally include a contribution to coverage of fixed and common costs. If discrimination in the provision of access will permit the BOC, after it has been given permission to supply interLATA service, to expand its market share in this arena and thereby to add to its contribution returns, it will have every incentive to do so. Thus, in the circumstances under consideration, the notion that the bottleneck-owning firm has nothing to gain by discrimination in its supply of bottleneck services simply does not hold water. Once it is permitted to enter the vertically-related field into which it seeks to

embark, it will continue to have a strong incentive to offer those facilities to its rivals on terms less favorable than it provides them to itself. There seems to be little reason to doubt this. The only real question is whether such discrimination will be within its power.

37. BellSouth responds that future competition will preclude it. But here it is important to note once again that not even BellSouth's witnesses claim that such competition is already powerful enough to do the job fully and adequately.

38. Thus, while explaining that some competition is already on the scene, BellSouth acknowledges that more competition is only an anticipation for the future. Moreover, BellSouth offers no evidence on the power of that competition, and it admits that such competition is not yet widespread, and that it is not even certain to be in the future. Ultimately, BellSouth turns to regulation as a necessary supplementary guarantee, thereby tacitly conceding that competition is currently insufficient to do the job, and that it may not be in the future.

39. There are numerous ways for BOCs to engage in price-discrimination against non-affiliated competitors, and to shift costs from competitive markets to their regulated monopoly markets. In markets as complex and technologically dynamic as the interexchange and equipment manufacturing markets, opportunities for self-preference of this kind are numerous, hard-to-detect, and frequently hard to distinguish from legitimate competitive behavior. These techniques include:

a. Vertical price squeezes -- that is, raising the price of an essential facility (i.e., access to the local network) high enough in relation to the bundled price of local exchange and interexchange service so that the resulting margin is too small to cover the incremental costs of efficient competitors.

b. Mischaracterizing costs that are attributable to competitive services as jointly attributable to competitive and regulated services, thereby shifting a portion of the costs to purchasers of the regulated services. (I understand, for example, that several BOCs may have allocated to ordinary telephone service the cost of fiber optic cable capacity whose installation was driven solely by a desire to compete in broad-band services.)

c. Charging excessive transfer prices for inputs purchased by the regulated entity from an unregulated affiliate, thereby raising the accounting costs of the regulated entity and obtaining a rise in the regulatory price ceilings.

d. Charging noncompensatory transfer prices for inputs sold by the regulated entity to an unregulated affiliate.

e. Transfer of physical, intangible or human capital (including brand identification, know-how, trained personnel, licenses, patents, and advance knowledge of infrastructure development plans) without compensation, or with inadequate compensation, from the regulated entity to the unregulated entity.

40. It is no answer to argue, as have several of BellSouth's witnesses, that AT&T, MCI, Sprint, and WorldCom are large and sophisticated companies, eminently capable of detecting misconduct of this kind. Ability to sense the existence of cross-subsidies, cost shifting or degradation of service provides no solace to a competitor that cannot prove or stop the anticompetitive conduct. Suppliers of long-distance service have no ability to vote with their feet if BellSouth gains a reputation for misconduct. They are utterly dependent on the BOCs to originate and terminate virtually all of their calls. Furthermore, the complexity and judgmental nature of the relevant costs -- and a BOC's control of its own cost records -- make regulatory relief time-consuming, costly and uncertain.

41. The vertical competitive issues raised by AT&T's recent acquisition of McCaw provide an instructive contrast. The analog for local exchange service in the AT&T/McCaw context was the market for equipment used by providers of cellular service: AT&T sold the same kind of cellular equipment to independent cellular carriers that AT&T could provide to McCaw, their competitor. The critical difference was the competitiveness of the market for cellular equipment: if AT&T began to gain a reputation for discrimination, overpricing its cellular equipment, degrading equipment provided to rivals of McCaw, or

attempting vertical price squeezes, independent cellular companies had the option of shifting to competing equipment suppliers. It is also unrealistic to expect that AT&T could have exploited an independent cellular carrier after it made a sunk investment in AT&T-specification equipment. If AT&T had been recognized to engage in this kind of ex post opportunism, it would quickly have been shunned by potential customers.

42. Even apart from concerns about discrimination in the pricing of access, serious concerns remain about the danger of discrimination in BellSouth's provision of access services. Discriminatory delay in inauguration of requested service or in the quality of that service can be a substantial disadvantage to rivals, and can be carried out in ways that support at least plausible arguments of legitimacy, making regulatory protection or remedy far from certain. And with the technological complexities and dynamic changes that characterize the telecommunications industry, myriad and subtle possibilities for discriminatory treatment clearly exist.

43. Discriminatory provision of access can take numerous forms. These include outright denial of access; restrictive interconnection policies; provision of inferior or less responsive service; manipulation of product or service specifications, predatory changes in network design, or failure to provide prompt notice of changed product or service specifications (all of which can give an affiliated supplier an insuperable head start over competing equipment vendors or service providers); prohibitions or restrictions against resale

of services; and refusal to offer facilities for downstream services until the BOC is ready to offer its own, competing service.

44. Finally, BellSouth, if allowed to integrate into interexchange service or manufacturing, could appropriate information about the regulated affiliate's customers, at the expense of competing vendors of interexchange service or equipment.

45. True, full and effective competition would eliminate the attendant dangers, but, as we have seen, such competition is not yet here, and we cannot be sure when, if ever, it will arrive for some critical components of local exchange service.

B. THE LIMITED EFFECTIVENESS OF PRICE CAP REGULATION TO CHANGE THE RBOCs' INCENTIVES

46. BellSouth argues that any opportunities for cross-subsidy have been eliminated by adoption of price cap regulation by the FCC as a substitute for rate-base, rate of return regulation. Once again, there is some basis for this position. Rate-base rate of return regulation is a standing invitation to the regulated firm to undertake cross-subsidy from products sold in markets relatively immune from competition to other company products subject to stronger competitive pressures. It can do so by manipulation of those costs that arise from the supply of products of both types, seeking to misattribute costs actually entailed in the supply of the competitive products to those products in which the firm enjoys market power. The apparent costs of the latter having been increased, the regulated firm can expect to have

the price ceiling on those products raised correspondingly, thereby gaining a competitive advantage in its more competitive markets at no cost to itself in terms of profits foregone. Price cap regulation is designed to eliminate this prime avenue for cross-subsidy by the regulated firm. It does so by making price ceilings dependent on developments beyond the control of the firm -- on data such as the consumer price index, or the historical rate of productivity growth -- so that anything the regulated firm does to manipulate its cost accounting procedures leaves the regulatory ceilings unaffected.

47. This is all very true in principle, and is true to a degree in practice. In reality, there is good reason to believe that price cap regulation has narrowed the opportunities for cross-subsidy. However, narrowing of those opportunities is not tantamount to their elimination.

48. First, the price cap regime is still far from universal. The FCC's price cap rules do not apply to any intrastate services, although some states have adopted some form of price cap regulation. Moreover, the selection of the necessary prices for unbundled services (including the pricing of access under the terms of the parity principle) itself provides incentives for misallocations.

49. Second, even under the purest rate cap scheme, political realities can be relied upon to prevent the regulator from ignoring rate of return altogether. Whatever vows the regulator may take to avoid interference with the magnitudes of the price caps, such a self-denying ordinance will be breached if the regulated firm actually earns returns patently beyond

the competitive level, or if, on the other hand, persistently inadequate returns threaten unacceptable deterioration in service quality or even the existence of the firm itself. This means that in practice rate of return considerations can be expected to reenter, as they have in many other countries such as the U.K. and Argentina, by the back door, and bring with them, in attenuated form, precisely the sort of opportunities for cross-subsidy that the regulated firm had before.

50. With the coverage of price cap rules far from universal, with their future far from certain, and with those rules universally supplemented explicitly or implicitly by a rate of return standard, the notion that all opportunities for cross-subsidy have been foreclosed to BellSouth now and forever, and that one can unconcernedly permit entry into the interLATA markets, makes sense only if one is prepared to ignore reality. Freedom of BOC entry into these markets is, indeed, a goal to be worked toward, but only with a complete set of appropriate safeguards in place, and only after effective tests of competitiveness in the pertinent markets have been passed.

IV. CONCLUDING COMMENT

51. In ending, I reaffirm my hope that market forces will soon bring competition to much and perhaps all of the industry's local activities. However, this is a process that is only in its beginnings, and there is no way of foreseeing how far it will go.

52. In previous writings as well as here I express the hope that it will ultimately become appropriate from the viewpoint of the social interest to permit the BOCs to enter arenas from which they are currently excluded, and that this will happen without unnecessary delay. But before that can occur either the local exchanges will have to have become fully and demonstrably competitive, something which surely has not yet occurred, or it will be necessary to adopt reliable and effective safeguards to remove any incentive for or ability by the BOCs to engage in discrimination in the pricing and provisioning of bottleneck facilities. These safeguards, at a minimum, should require the existence of effective UNE-based competition coupled with a sufficient period to permit the Commission to institute appropriate benchmarks and standards based on actual performance to ensure that such competition, in conjunction with regulation, effectively constrains the BOCs from engaging in anticompetitive conduct. For reasons I have discussed here, neither the current state of competitive entry into access markets nor the currently available safeguards are sufficient to justify BellSouth's entry into interLATA services anywhere in the near future.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 14, 1997.

William J. Baumol

Sworn to and subscribed before me

this 14th day of November, 1997

George P. Drogaris
Notary Public State of N.Y.
No. 43-494 1830
Qualified in Richmond County
Commission Expires Sept. 6, 199?

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ATTACHMENT 1

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Born February 26, 1922, New York, NY
Married, two children
BSS College of the City of New York, 1942
Ph.D University of London, 1949

1942–1943 and 1946: Junior Economist, U.S. Dept. of Agriculture
1947–49: Assistant Lecturer, London School of Economics
1949–92: Professor of Economics, Princeton University
1992–current: Senior Research Economist and Professor of Economics Emeritus, Princeton University
1971–current: Professor of Economics and Director, C.V. Starr Center for Applied Economics, New York University

AWARDS & HONORS:

1953 Fellow, Econometric Society
1957–58 Guggenheim Fellow
1965 Honorary LL.D, Rider College (Trustee Emeritus)
1965–66 Ford Faculty Fellowship
1968 Joseph Douglas Green '95 Professor of Economics, Princeton University
1970 Honorary Fellow, London School of Economics
1971 Member, American Academy of Arts and Sciences
1971 Honorary Doctorate, Stockholm School of Economics
1973 Honorary Doctor of Humane Letters, Knox College
1973 Honorary Doctorate, University of Basel
1975 John R. Commons Award, Omicron Delta Epsilon
1975 Townsend Harris Medal, Alumni Association of the City College of New York
1977 Member, American Philosophical Society
1982 Distinguished Fellow, American Economic Association
1984 Distinguished Member, Economic Association of Puerto Rico
1986 Winner, Assoc. of American Publishers Award for Best Book in Business, Management and Economics, *Superfairness: Applications and Theory*
1987 Recipient, Frank E. Seidman Distinguished Award in Political Economy
1987 Member, National Academy of Sciences
1989 Winner, Assoc. of Am. Publishers Annual Awards for Excellence in Publishing, Honorable Mention in Social Sciences, *Productivity and American Leadership: The Long View*
1992 Recipient, First Senior Scholar in the Arts and Sciences Award, New York University
1995 Honorary Degree, University of Limburg, Maastricht, Holland
1996 Honorary Professorship, University of Belgrano, Buenos Aires, Argentina

PROFESSIONAL ACTIVITIES:

Member, Advisory Board, Insurance Information Institute Press
Chairman, Overseers' Committee to Visit Dept. of Economics, Harvard University
Member, Advisory Board, Journal of Economic Perspectives
Member, Editorial Board, Journal of Cultural Economics
Principal Investigator, Students at Risk Comm., Inst. for Education and Social Policy
Member, Advisory Committee, World Resources Institute (founding member)
Member, Editorial Advisory Board, *Supreme Court Economic Review*
Member, Board of Trustees, National Council on Economic Education
Member, Advisory Committee, Center for Entrepreneurial Studies, Graduate

School of Business Administration, New York University
Member, Board of Directors, Theater Development Fund
Member, National Science Foundation review panel for Science and Technology Research Centers
Member, Advisory Board, Fishman–Davidson Center for the Study of the Service Sector, Wharton School, University of Pennsylvania
Correspondent, Committee on Human Rights, National Academy of Sciences
Member, Committee on the National Institute for the Environment, National Academy of Sciences
Member, Board of Consultants, *Economia, Revista Quadrimestral* (Portugal)
Past President, American Economic Association (1981), Association of Environmental and Resource Economists (1979), Eastern Economic Association (1978–79), Atlantic Economic Society (1985)
Past Chairman and Member, Economic Policy Council, State of New Jersey (1967–75)
Past Vice President, American Association of University Professors
Various times on Boards of Editors for *American Economic Review*, *Kyklos*, *Journal of Economic Literature*, *Management Science*, *Economic Notes* (Italy), *Journal of Economic Education*, *Impresa e Concorrenza* (Italy), *THESIS: Theory and History of Economic and Social Institutions and Structures* (USSR), *Feminist Economics*
Frequent consultant to government and industry, in U.S. and many other countries.

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